

SCIENCE & GOVERNMENT REPORT

19th Year of Publication
The Independent Bulletin of Science Policy

Volume XIX, No. 2

P. O. Box 6226A, Washington, D. C. 20015 ©

February 1, 1989

"Applied Civilian Research" Draws Political Notice

In House Budget Analysis

From a major power center in Congress comes a new staff analysis of federal spending for research and development that indicates strong doubts about the favored role of the Pentagon and the relative neglect of government backing for civilian applied research. The impression conveyed is that a swing of the pendulum is desirable.

The misgivings about the status quo in R&D are expressed by the House Budget Committee staff in a review of the swansong budget that the Reagan Administration proposed on January 9 for fiscal 1990, which begins next October 1. With its producers gone from the scene, the final Reagan budget is wide open to change, both by the Bush White House and Congress. But the rules of the game make that 1990 budget the starting point for debate, and the first expression to come out of Congress is the House Budget Committee analysis, issued just prior to Inauguration Day.

It carries a cover notice stating that "This document has

And from New OMB Director

The first indication of research-policy trends in the Bush Administration appeared last week when Richard G. Darman, the nominee for Director of the Office of Management and Budget (OMB), expressed support for an increase in "applied civilian research and development."

Darman made the remark at his confirmation hearing before the Senate Committee on Governmental Affairs. Responding to a question by Senator Jeff Bingaman (D-NM) about methods of increasing productivity, Darman stated that "I have suggested, and I do not know how quickly we will be able to move in this direction, but I do think we need to do more in the area of applied civilian research and development." He added that "making the existing R&D tax credit permanent would be a responsible step to help encourage that." The credit was reduced last year and extended only to the end of this year.

Darman continued: "I want also to take a look at the portfolio, so to speak, of federal investment, direct investment, in R&D. The applied civilian portion has declined somewhat in recent years," he said, "although overall R&D as a proportion of GNP has stayed about the same or risen slightly. And I want to take a look at that. I think that is very important to long-term productivity growth."

(According to NSF's annual *National Patterns of Science and Technology Resources* 1987 [the latest edition], federal

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AAAS Picks a New Executive---P. 5 Fraud Pow-Wow Held in Secret---P. 3

not been reviewed and approved by the committee and, therefore, may not necessarily reflect the views of all of its members." Nonetheless, the analysis distills lamentations that Congress had increasingly heard, from witnesses and its own members, in the final years of the Reagan Administration. A quest for R&D policy clues should start here.

Citing the basic numbers of federal R&D spending during the Reagan years---from \$30 billion in fiscal 1980 to \$59 billion in 1988---the Budget Committee analysis selectively notes winners and losers within the totals: "Civilian R&D through fiscal 1988 has not kept pace with inflation since fiscal 1980; in fact, it has been cut by more than 9 percent in real terms since 1980," it states.

"Defense R&D, on the other hand, has more than doubled to \$39 billion from its fiscal year 1980 level of \$15.1 billion," the report notes, pointing out that "This constitutes 82 percent real growth."

Focusing on the Pentagon's allocation of its "R&D" funds, the analysis repeats doubts that are increasingly heard in Washington about the wide range of activities that the Defense Department charges to R&D. (The National Academy of Sciences, in a recent report, *Federal Science and Technology Budget Priorities* [SGR, In Print, January 15], raised the same point). The Budget Committee report goes on to suggest doubts about the civilian "spinoff" argument that is routinely raised when defense is accused of hogging national R&D resources.

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In Brief

A press release from the House Science, Space, and Technology Committee called it: "R&D Posture Hearing with Outgoing Science Advisor to the President," scheduled for 3 pm, January 19th, Ronald Reagan's last full day as President. But the hearing did not take place.

At 2:45 pm, according to Committee sources, Science Adviser William R. Graham telephoned Chairman Robert Roe (D-NJ), and said he had just been asked to meet with Reagan and Bush at 3:15 pm. Graham reportedly offered to send his Deputy, Thomas Rona, but Roe simply canceled the hearing, an annual affair at which the Science Adviser is the sole witness. There's not been any public word about the outcome of the meeting Graham said he had to attend.

And, as of January 26, there was still no news of the Administration's plans for Graham's shop, the White House Office of Science and Technology Policy. An aide there said Graham had sent in the pro forma resignation requested of all Reagan appointees, but had been asked to stay on temporarily. Graham has publicly said he does not want to be reappointed to the post.

...Shifts to Applied Noted in Pentagon Programs

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"DOD's research has become increasingly applied in nature, in support of DOD's greatly increased procurement activities. In fact," the report goes on, "much of DOD's applied R&D activities could be considered to be early procurement activities, such as prototype construction, and thus, unlike basic research at DOD, may not have much value to activities outside of DOD."

The report adds: "Precisely the opposite has occurred in civilian R&D; it has become increasingly basic research while applied civilian research has been cut significantly in real terms."

The report also states numbers that support complaints that the prodigious growth in the Pentagon's R&D budget has not benefited DOD's basic research programs, an issue about which defense research officials are extremely touchy (SGR, January 15, 1989, "To the Editor: Pentagon Isn't Neglecting Support for Science").

While DOD's R&D budget went up by a "real" 84 percent during the Reagan Administration, basic research spending rose by only 13 percent, the report states. "In fact," it continues, "defense basic research was \$921 million in fiscal year 1986, but fell to \$904 million in fiscal 1987, and \$873 million in fiscal 1988, before it was increased to \$939 million in fiscal year 1989, 8 percent below its fiscal year 1986 level in real terms." (A \$10 million cut, to \$929 million, was proposed by the departing Reagan Administration for next year.)

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support for applied research dropped by 20 percent in real terms between 1976 and 1986, mainly because of cutbacks by NASA and the Department of Energy. The Reagan Administration frowned on federal support of applied research, insisting that industry was best at picking applied-research projects. But Japan's emphasis on applied research has spawned second thoughts about American policy in industrial and science-policy circles.)

Asked about reversing the declining federal role in support of education, Darman replied: "I do not think you will see a significant change in the percentage [of national education spending] that is accounted for by Federal resources." The federal role, he said, is "in encouraging innovation within the education system" and drawing attention to successful methods. Darman continued, "I think we [the federal government] can have programmatic substance within the field of education, but that it does not require a substantial increase in federal investment."

On federal environmental activities, he said, "Bearing in mind...that the available funds are highly limited, within that constraint, investment in the environment is very, very high on the list..."

The final Reagan budget, the Budget Committee staff analysis states, gives civilian R&D an edge in growth, 7.4 percent compared to 6.5 percent for R&D programs related to national security. But the Budget Committee analysis goes on to discourage the impression of a significant shift toward civilian R&D. "A different way to think of the overall budget increase for R&D," it suggests, "is that about half of it (\$2.6 billion) is for DOD applied R&D, and the remainder for AIDS research, the NASA space station, the NSF (including a second round of competition for Science and Technology Centers), the Superconducting Super Collider, and the initiation of a new synchrotron (6-7 GeV) and a next-generation magnetic fusion device, the Compact Ignition Tokamak."

At the same time, the report notes, the last Reagan budget repeats past attempts to terminate the Sea Grant Program and proposes major reductions in energy research.

Under the heading "Future Issues," the staff analysis asks: "What is the appropriate mix between basic research and more applied R&D? The Reagan Administration has emphasized the funding of basic research in the civilian sector, instead of applied research," it states. "On the defense side, the opposite seems to be the case, as support for defense basic research has lagged behind the increase for applied spending."

Also raised is an issue often discussed in Washington today: "Is there a need for governmental organizational change in the management of applied civilian R&D? For example, would it be useful to create a civilian agency analogue of the Defense Advanced Research Projects Agency (DARPA) to better manage this kind of research?"

And the report also raises the old issue of big vs. little science, increasingly compelling as major ventures such as the space station join the queue for federal support. "Will overall funding for science programs be increased enough to finance the expensive new initiatives in the President's budget, or will funding for ongoing science programs have

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Independently published by Science & Government Report, Inc., twice monthly, except once each in January, July, August, and September. Annual subscriptions: Institutions, \$255.00 (two years, \$445.00). Bulk and individual rates upon request. Editorial offices at 3736 Kanawha St. NW, Washington, DC 20015. Tel. (202) 244-4135. For subscription service: PO Box 6226A, Washington, DC 20015. Tel. 1-800-522-1970; in Washington, DC 785-5054. Reproduction without permission is prohibited. SGR is available on University Microfilms International. Claims for missing back issues will be filled without charge if made within six weeks of publication date. ISSN 0048-9581.

Scientists, Congressional Aides Confer on Fraud

One of the less endearing qualities of the scientific culture is its infantile fetish for secrecy about the seamy side of research. It's back again, this time in connection with a major conference that was held January 26-28 on scientific misconduct. The shame of it is that the Sloan Foundation, which should know better, paid the bills for the furtive gathering, while the Cold Spring Harbor (NY) Laboratory, which ought to be acquainted with the virtues of openness, played organizer and host.

Though the elders of the profession routinely emit paeans to the importance of unfettered communication, closed doors and hush-hush have regularly been the preferred leitmotif when science convenes to discuss the murky issue of sinning in the lab. On these past occasions, the mandarins yielded to ridicule of their hypocrisy or threats of legal action under the Federal Advisory Committee Act. However, Cold Spring Harbor, a private institution spending a private foundation's money, stands on its legal right to hold secret meetings.

The conference was described in letters of invitation as "one of a series of meetings intended to give Congressional staff workers an opportunity to learn in depth about some aspect of biological research of topical interest." The 36 invitees included 18 Congressional staff members and several scientists, among them David Korn, Dean of Stanford School of Medicine; Walter Gilbert, Professor of Biology, Harvard, and James Watson, Director of the Cold Spring Laboratory. Most of the other invitees are circuit riders on the busy scientific-fraud conference trail, including Walter Stewart, the NIH staff member who has found a second career in investigating scientific misconduct.

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to be reduced somewhat to allow room for new initiatives? If the latter," it asks, "at what pace should the new initiatives proceed at the present time?"

In broad strokes, that pretty well sets out the science agenda for the new session of Congress, as well as the new Administration. The House Budget Committee, along with its Senate counterpart, deals with federal money on a wholesale basis, by setting spending ceilings for broad categories of federal activities.

The fine details are left to the appropriations subcommittees, which have jurisdiction over the budgets of individual federal agencies. But in the complex process of Congressional control over federal spending, the Budget Committees wield great power by defining the issues.--DSG

(President Reagan's Fiscal Year 1990 Budget: A Summary and Analysis Prepared by the Staff of the House Budget Committee [267 pp., no charge]. Order from: US House of Representatives, Budget Committee, Publications Office, 300 New Jersey SE, Washington, DC 20215; tel. 202/226-7217.)

Letters of invitation to the conference did not explicitly refer to the long-festering case involving Nobelist David Baltimore, Director of the Whitehead Institute for Biomedical Research, at MIT (SGR, January 15, 1989), accused of tolerating a coverup of errors in a paper he co-authored in 1986. But the gathering of Congressional staff for two days of discussion of how science functions is a bold effort at damage control by the science establishment.

The Baltimore case, now approaching a climax in the languid NIH review process, has created a frenzy of alarm in senior scientific circles, where the widely respected Baltimore is seen as a victim of dark forces that have cunningly misled Congress into doubting the integrity of the scientific community. Stewart and his NIH partner, Ned Feder, early on championed the cause of the complainant in the Baltimore case, a former postdoctoral fellow in a laboratory that collaborated on the *Cell* paper. The two NIH staff members later were detailed at Congressional request to assist the House subcommittee that last year roasted NIH for its admittedly shallow examination of the charges.

Against that background, as the last session of Congress was drawing to a close, several members were drafting legislation to create an Office of Scientific Integrity in the Department of Health and Human Services to root out misconduct and fraud (SGR, November 1). They say they'll be back with a bill this session.

The theme of political persecution of science was sounded in an address January 14 by Donald Kennedy, President of Stanford University, at the annual meeting of the American Association for the Advancement of Science (AAAS). Citing "a new and corrosive popular mistrust of scientists and their work," Kennedy described Baltimore as "the victim of an unprecedented attack, based on a rather narrow difference of scientific interpretation that has been transmuted through the alchemy of politics into allegations of misconduct."

Kennedy did not mention that a blue-ribbon investigating panel appointed by NIH has reported that the disputed paper "contains serious errors of misstatement and omission" (SGR, December 1, 1988) and recommended publication of corrections. But the Stanford President did assail Congressional hearings "at which the accused persons were not even invited to testify." This was a reference to a tumultuous hearing last April at which Rep. John Dingell (D-Mich.) brought out that NIH initially responded to the allegations in the case by appointing two colleagues of Baltimore to conduct the investigation.

Kennedy took no note of that peculiar investigative style, nor did he acknowledge that Chairman Dingell's Oversight and Investigations Subcommittee was, in accord with its legislative charter, examining only how NIH responds to allegations of misuse of federal research funds, a matter on

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...Previous Meetings Were Opened After Protests

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which NIH officials, rather than "the accused persons," are appropriate witnesses.

The Subcommittee didn't attempt to pass judgment on the allegations against Baltimore and his co-authors, nor should it have, a point that has been overlooked in several published commentaries on the case. The notoriously rough-mannered Chairman Dingell can be justifiably criticized for failing to follow his own Committee's written rules about giving equal time to persons who are disparaged during hearings. But the fact is that the hearing was concentrated on NIH's performance and dealt only peripherally with Baltimore.

The letter of invitation to the Cold Spring Harbor meeting, signed by Jan A. Witkowski, Director of the Cold Spring Banbury Conference Center, stated that the meeting would be "off the record" to encourage participants to ask questions and to voice opinions that may not be heard in more formal settings."

"Off the record" was not defined, nor is there a general accepted definition for that ego-inflating phrase. But if used in the dictionary sense (*Webster's Ninth Collegiate*) of "given or made in confidence and not for publication," off the record is functionally absurd for a meeting attended by 36 persons concerning an issue which many of them have publicly addressed in speech and writings.

Witkowski, in a testy telephone conversation with SGR, appeared incredulous when asked why the meeting was closed. "All meetings at the Banbury center are closed," he explained in a manner suggesting that closure originated in an immutable law of nature.

The advantage of this form, he explained, is that it "allows people to speak as freely as possible." He did not address a well-established disadvantage of "off-the-record" proceedings, i.e., unaccountability for erroneous or damaging statements. Another reason offered by Witkowski was that "we lack [housing and meal] accommodations for more than 36"---which is nonsense, given the availability of nearby lodgings and ample meeting space for more than 36.

As for "off the record," Witkowski explained, "To me, it means don't go around repeating things without permission" of the source. Asked whether this applied to previously public statements that are repeated at the meeting, Witkowski expressed exasperation at being questioned on the subject and fell back on his position that closed-door conferences are regularly held at Cold Spring Harbor---and that's that.

Efforts at secrecy in other recent meetings on misconduct in research provide a tale of absurdity involving some of the big-league chiefs of American science. In September 1987, for example, the ever-ready Sloan Foundation put up \$25,000 for a "Workshop on Scientific Fraud and Misconduct," sponsored by the Conference of Lawyers and Scientists, a joint venture of the American Bar Association and the AAAS. The press was not invited, but when SGR asked to

attend, the rules were revised to allow coverage "on a background basis" (SGR, September 1, 1987). But the AAAS, which managed the meeting, was unable to explain what that meant, and, on second thought, it opened the meeting to press coverage without restrictions. The meeting was characterized by sprightly, seemingly uninhibited discussion, and was rated a success by most who attended.

In September 1988, the Institute of Medicine (IOM, part of the National Academy of Sciences) held a "Workshop on the Responsible Conduct of Research," in conjunction with a contract to advise NIH on the misconduct issue. As might be expected, the high temple of science opted for a secret workshop. Whereupon, the litigation group of Ralph Nader's Public Citizen, representing SGR, warned the IOM that secret sessions would violate the Federal Advisory Committee Act. The Nader lawyers threatened to get a Federal court order closing down the meeting. The IOM promptly opened the meeting to the press (SGR, September 15, 1988).

Another episode occurred in connection with an in-service training program January 12-13 at NIH, to which SGR editor Greenberg was invited several months earlier as one of a dozen speakers. As the meeting date approached, the NIH managers sent a letter of final details that included a previously unstated note: The training sessions would be "closed and confidential." Asked to explain the terms, an NIH official said it meant the meeting was "off the record." After being told that the SGR editor would not take part in a meeting that had restrictions beyond space availability, the NIH folks revised the definition to mean "that no video cameras or tape recorders would be allowed." Finally, they said the meeting was open and without restrictions.

Perhaps the greatest irony in science's penchant for secrecy at the aforementioned meetings is a theme often raised by speakers who uncomplainingly accept the secrecy ground rules. The theme concerns the importance of maintaining public confidence in the integrity of the scientific enterprise.

It is very important. Therefore the managers of science should recognize that a sure way to lose public confidence is by holding secret meetings on matters of public concern.---DSG

Small Business Innovation Program Rated High in Report to Congress

The General Accounting Office says high-quality research with good prospects for commercialization is being produced by the Small Business Innovation Research Program, initiated by Congress in 1983 over the opposition of the Reagan Administration. SBIR requires most federal research agencies to set aside 1.25 percent of their external research funds for awards to small firms. *Federal Research: Assessment of Small Business Innovation Research Programs* (187 pp., no charge) is available from: GAO, PO Box 6015, Gaithersburg, Md. 20877; tel. 202/275-6241.

NSF Official Appointed Executive Officer of AAAS

Richard S. Nicholson, a senior administrator at the National Science Foundation, has been appointed to the top managerial position, Executive Officer, at the American Association for the Advancement of Science, an organization that has been drifting and gently sinking for several years.

With NSF since 1970, and Assistant Director for Mathematical and Physical Sciences since 1985, Nicholson succeeds Alvin W. Trivelpiece, who unexpectedly quit the AAAS after less than two years in office to become head of the Oak Ridge National Laboratory (SGR, October 15, 1988). The AAAS elders voiced a polite goodbye to Trivelpiece. But privately, there was considerable annoyance about the short and unnotable tenure of the executive who was hired to rejuvenate the ailing Association.

Among colleagues at NSF and research clients outside, Nicholson, a chemist by training, is highly regarded as an efficient and sensible administrator. Whether his background equips him for dealing with the infirmities of the AAAS is a separate matter. The Board of the AAAS, composed mainly of busy academics, is not renowned for its prescience in personnel affairs.

Best known for its most valuable property, the weekly journal *Science*, the AAAS also presides over a melange of other activities, including promotion of innovations in science education, championing the rights of oppressed foreign scientists, a big general annual meeting and smaller ones on federal R&D spending plans and arms control. In the guise of providing "briefings," it also lobbies Congress to be generous with research budgets.

What's little realized, however, is how the AAAS has maladroitly missed out on the rapid expansion of the American scientific enterprise in contrast to the healthy growth experienced by other research-related professional associations. The comparative figures, gathered by SGR, are striking.

The present membership of the AAAS stands at about 132,000, which is almost exactly where it was in 1978, when the ranks of science, technology, and related professions were about half their current size. In approximately that same decade of 1978-88, while the AAAS experienced no growth, the memberships of other major professional associations rose as follows:

Institute of Electrical and Electronic Engineers, (US membership) 159,400 to 239,600.

American Chemical Society, 116,240 to 137,650.

American Physical Society, 29,336 to 39,396.

National Science Teachers Association, (1983) 33,275 to 44,305.

The circulation of *Science* magazine, the principal attraction for joining the AAAS, totals about 160,000. Of this number, 132,000 copies go to AAAS joiners as a benefit of membership, while the balance consists of non-membership subscriptions by libraries and other institutions.

Since it mainly reflects the AAAS membership rolls, the circulation of *Science* has also been static. That's not the case, however, with *Science*'s closest counterpart, the British weekly *Nature*. Published by Macmillan as a commercial operation, *Nature* has a comparatively small circulation, but it has experienced rapid and continuous growth, from 20,685 in 1980 to 42,509 at present. Circulation growth over the past year was up by 17 percent, with a good portion of that occurring in the US, where an annual subscription for an individual costs \$125. AAAS membership was recently raised from \$70 to \$75 to help counter a deficit in the Association's finances.

The reading tastes of scientists arise from many different factors, but increasingly one hears that *Science* has not flourished intellectually under Daniel E. Koshland Jr., who became editor in 1985.

A common complaint is that Koshland's own background in the life sciences is disproportionately reflected in the selection of research papers for publication. Koshland is a Professor of Biochemistry at UC Berkeley, where he holds a half-time appointment while serving as editor of *Science*, which is based in Washington.

Though some two-thirds of the world's research is now produced outside the US, *Science* continues to represent America's obnoxious scientific insularity at its worst. *Science* maintains a European news correspondent, based in Britain, but it scarcely ever reports on Japan, where *Nature* has posted a fulltime correspondent for many years. And *Science* reports even less about the Soviet Union and Eastern Europe, areas on which *Nature* has long diligently reported and for which it recently announced an expansion of coverage.

While malaise spreads at the magazine, the AAAS's principal property and source of members, the Board of the organization is so remote and disengaged as to invite doubts as to whether it knows what's going on. One former President of the AAAS told SGR that the Association "is going down the drain but they don't know it."

Whether the situation is as dire as that is doubtful. But the Board of the AAAS has on occasion demonstrated an obtuseness that provides no grounds for confidence about its judgment or sense of propriety. For example, last November, a press release from the Association announced the outcome of the election for AAAS President-elect, which was won by Donald N. Langenberg, Chancellor of the University of Illinois, at Chicago (SGR, December 15, 1988).

The announcement did not mention his opponent, H. Guyford Stever, a veteran of many high posts in Washington science-policy circles, nor did it report the ballot count, which in the past had been provided upon request. SGR's inquiry about the vote brought the response that "an executive office decision was made not to release the vote." No

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Maryland Senator Angles for NSF Headquarters

Long accustomed to presiding over intense regional competition for the projects and grants it dispenses, the National Science Foundation now faces a new experience: competition for the Foundation itself.

The NSF staff, numbering 1300, must move from its conveniently located headquarters, at 1800 G St. NW., in the heart of downtown Washington, to provide expansion room for another occupant, the Secret Service. Another reason for moving on is that the 25-year-old building is increasingly crumbly. In December, a cranky elevator there held NSF Director Erich Bloch prisoner for about half an hour.

Bloch was initially hoping for another downtown site, one that could match the present brief stroll to the Office of Management and Budget and the National Academy of Sciences, frequent destinations for NSF staff, as well as the short ride to Capitol Hill. The G St. location is close to many eateries and shops and the efficient metropolitan-area subway system. As a downtown work site, it is tops.

But then the vagaries of Congressional seniority came into the picture when Senator William Proxmire (D-Wisc.) retired at the end of 1988, thus opening the chairmanship of the Appropriations Subcommittee that handles NSF's budget. Into the chairmanship came Barbara Mikulski (D-Md.), who last year encouraged NSF to consider bids for new office space from throughout the Washington metropolitan area. She did this by threatening to block passage of the NSF budget. Though Bloch had expressed a preference for downtown, he was converted to a metropolitan outlook.

In December, Mikulski told said that it would be a "coup" for Montgomery County, next door to the District of Columbia, if NSF moved out there, perhaps as a neighbor to the National Oceanic and Atmospheric Administration, which has relocated to a soulless new office complex in Silver Spring, a hot real estate area in the booming county. Nearby are the main campuses of the National Institutes of Health and the National Institute of Standards and Technology, plus headquarters of the Food and Drug Administration and the Department of Energy. Noting that Montgomery County is the center of a high-tech boom that spreads into adjacent counties, Mikulski said, "We could have a research triangle that could span one great city and several great counties."

A newspaper advertisement inviting bids for 350,000-370,000 square feet of space was published December 17, and some 50 responses were received. After the list is narrowed, further information will be sought from bidders over the next few months. The winner will be picked, perhaps in September, by the General Services Administration, the landlord for federal agencies. Under the present schedule, the move will take place in 1992.

NSF was previously in no hurry to move if the choice was staying put or relocating to the suburbs. However, a new factor arises from the Foundation's hopes for rapid budget growth: The space being solicited is for a staff larger by 300 persons than the present ranks.

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explanation was offered for this exercise in electoral concealment.

SGR has since been informed that the decision was made by the departing Executive Officer, Trivelpiece, and that he obtained Board approval for it. Last week we asked Langenberg if he felt comfortable in accepting election to a position when the vote count was withheld from the voters. To which he replied, "I don't consider that a great matter of public principle has been violated. I know what the vote was."

Asked why such fundamental information should be withheld, Langenberg said, "There's no reason to put someone's nose out of joint." He added that he wasn't at the Board meeting that approved the concealment and he had no objection to disclosing the vote.

Though it publishes an annual financial statement, and, as a non-profit organization, its tax returns are, by law, available upon request (SGR, December 15, 1988), the AAAS tends toward rhetorical foggiess in discussing its tenuous financial affairs. A fine example is an editorial, titled "Progress at AAAS," in the January 13, 1989, *Science*, by Philip H. Abelson, the former *Science* editor, who has been serving as Acting Executive Officer of the AAAS.

Abelson conceded that "the activities initiated by Trivelpiece are not immediately visible," but he expressed confidence that "their effects will be more noticeable with time." Then he gingerly approached the deterioration of the AAAS's finances:

"An obvious prerequisite for expanded activities is money. During the past few years, AAAS has incurred a substantial operating deficit, though its net worth has increased. [Unmentioned was that the increase resulted from the sales of a failed magazine, *Science* 86, and the longtime AAAS office building, which has been replaced by rented quarters.]

"Improvement in the financial situation," the editorial continued, "came as a result of many factors, including stringent economies in existing programs. A favorable factor was a record-breaking level of outside grants, mainly from foundations. In the past these grants covered only a fraction of the real costs of the activities they were designed to support.

"Through improved accounting practices," Abelson reported, "a larger fraction of the costs is being recovered, and more of them will be captured in the future." [The reference to improved cost recovery means greater finesse in playing the overhead racket.]

Krause Takes NIH Post

Richard M. Krause, Dean of Emory Medical School since leaving the directorship of the National Institute of Allergy and Infectious Diseases in 1984, has returned to NIH as Senior Science Adviser to the Fogarty International Center.

In Print: Math Ed, Hughes Awards, Lab Facilities

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remedies for the increasingly critical shortage of nurses.

Order from: AACN, Suite 530, One DuPont Circle, Washington, DC 20036; tel. 202/463-6930.

Everybody Counts: A Report to the Nation on the Future of Mathematics Education (114 pp.; \$7.95 for one; \$6.50 for 2-9; \$4.95 for ten or more), report from the National Academy of Sciences, cites findings about decrepit state of math education, calls for major reforms of curriculum and recommends that "All students should study mathematics every year they are in school."

Order from: National Academy Press, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-3313.

Grants Programs and Awards: 1988-1989, of the Howard Hughes Medical Institute (49 pp., no charge), reports on HHMI's herculean efforts to dish out \$500 million in special grants over a decade as part of a 1987 settlement of an old IRS suit accusing the late Howard Hughes of using the Institute "as a device for siphoning off otherwise taxable income." Beneficiaries of new grants, which are in addition to the \$200 million a year for a nationwide network of HHMI university-based labs, include science programs in 44 undergraduate institutions (including 10 historically black colleges). In the works are programs for secondary schools and studies in health-science policy and bioethics.

Order from: Howard Hughes Medical Institute, Office of Communications, 6701 Rockledge Dr., Bethesda, Md. 20817; tel. 301/571-0330.

EASST Newsletter, (quarterly, 24 pp., in US, \$13 per year) published by the European Association for the Study of Science and Technology, founded in 1981, contains commentaries on science-policy issues, book reviews, conference reports and announcements, etc. Fee covers Association membership and the newsletter.

Order from: Wesley Shrum, Department of Sociology, Louisiana State University, Baton Rouge, La. 70803; make check to 4S (Society for Social Studies of Science).

Pacific Circle Newsletter, (semi-annual, 8 pp., no charge) published by Pacific Circle, organized in 1985 for study of Pacific science.

Order from: Philip Rehbock, History Department, University of Hawaii, 2530 Dole St., Honolulu, Hawaii 96822.

Facilities (36 pp., no charge), brochure from the National Institute of Standards and Technology (formerly National Bureau of Standards) describing specialized research facilities at NIST labs in Gaithersburg, Md., and Boulder, Col., available for use by outside researchers.

Order from: Research and Technology Applications, A 537, NIST, Gaithersburg, Md. 20899. Tel. 301/975-3087.

The Folly of Man in Space

From a talk January 10 in Washington to the Space Business Roundtable by C. William Verity, 10 days before he stepped down as Secretary of Commerce.

NASA still seems to believe that the drama of humans in space is needed to win attention and Congressional support, but an unmanned space program could put the US back into frontline technology, at far less cost....[The] National Academy of Sciences is urging the Bush Administration to delay work on the Space Station until it is clear what function it is intended to fulfill in our nation's overall space policy. Can we really justify spending \$30 billion taxpayer dollars on something we aren't sure how we're going to use?

Debate on NASA's mission is long overdue, and the stakes are too high to wait any longer. We are at a crossroads as a space-faring nation, with our national and economic security on the line....This country is at risk of becoming the Portugal of the space era. Our explorations have been impressive; our consolidation of gains dismal. This is not lost on other space-faring nations like Europe, Japan, the Soviet Union, and China...

OECD Ministers Talk About Science and Technology for Economic Growth and Social Development (72 pp., no charge), proceedings from October 1987 conference of senior government S&T officials from the 24-member Organization for Economic Cooperation and Development, including the US version of a science minister, the White House Science Adviser, William R. Graham.

Order from: OECD, Mail Orders, 2 rue Andre Pascal, 75775 Paris, Cedex 16, France; tel. (1) 45.24.82.00.

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In Print: Immigrant Scientists, NAS Policy Papers

The publications listed are obtainable as indicated---not from SGR.

Immigrant Scientists and Engineers: 1987 (NSF 88-329; 12 pp., no charge), an update of NSF's series giving numbers, last country of residence, and disciplines, with "immigrant" defined as "those allowed to remain permanently in the United States and to obtain US citizenship." Defined in those terms, and with other definitional restrictions, the numbers here are small relative to the size of the science and engineering communities. In 1987, immigrant status was held by 8300 engineers, 1300 natural scientists, 1200 mathematical scientists and computer specialists, and 500 social scientists.

Order from: NSF, Division of Science Resources Studies, Room 1-611, 1800 G St. NW, Washington, DC 20550; tel. 202/634-4664.

Persistence in Science of High-Ability Minority Students (258 pp., \$16), report of a study by the Educational Testing Service, commissioned by NSF's Committee on Equal Opportunities in Science and Engineering, cites educational experiences associated with academic staying power of 6100 minority high school students who aimed for careers in science, engineering, and medicine. Among major factors: participation in high school math and science clubs, "enrichment" programs, and minority role models.

Order full report from: ETS, PO Box 6736, Princeton, NJ 08541; tel. 609/734-5050. A detailed summary is available without charge from: Dr. Ray Hannapel, NSF, Room 635-A, 1800 G St. NW, Washington, DC 20550; tel. 357-7071.

From the National Academy of Sciences and its engineering and medical affiliates, a new venture in advice, four unsolicited "white papers" addressed to the Bush Administration, all available to the public without charge:

Global Environmental Change (10 pp.) recommends a higher political priority for developing and applying environmental policies, with emphasis recommended for energy efficiency, reduction in use of ozone-destroying chemicals,

and increased research.

Science and Technology Advice in the White House (11 pp.) repeats familiar arguments that politics suffers from insufficient attention to scientific expertise, and urges rejuvenation of the Office of Science and Technology Policy and associated advisory organs.

Toward a New Era in Space (28 pp.) calls for a "core" program of some \$10 billion annually, focused on manned and unmanned vehicles, a "balanced" space-science and earth-sensing program, and national security missions. Beyond that, peak spending of \$3-4 billion a year is recommended for each "special" initiative deemed politically or otherwise desirable. Among these, the Academy includes the Space Station, but with evident coolness about its value.

HIV Infections and AIDS (13 pp.) cites forecasts of 200,000 deaths from AIDS over the next four years and urges strong programs of AIDS education and research, a national plan for financing health care for AIDS patients, anti-drug programs, and legislation to protect rights of AIDS patients.

Order from: NAS, Office of Government and External Affairs, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-2200.

The Complete Grants Sourcebook for Nursing and Health (298 pp., \$65), produced by the American Association of Colleges of Nursing and David Bauer, a veteran grants counselor, this one-volume guide describes some 300 major and minor private and federal sources of health-research funds. It's aimed at nursing, but other health professionals would also find it valuable.

Order from: Macmillan Publishing Co., 866 Third Ave., New York, NY, 10022; tel. 1-800/257-5755; in New Jersey: 609/461-6500.

Alternative Conceptions of Work and Society: Implications for Professional Nursing (225 pp., \$21.50), proceedings of the 1988 American Association of Colleges of Nursing Deans Summer Seminar, focused on causes of and

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